

REMARKS**Rejection of Claims Under 35 U.S.C. 112, Second Paragraph**

The Examiner has rejected Claims 1-10 under 35 U.S.C. 112, second paragraph, on the asserted basis that the claims are indefinite. In particular, the Examiner contends that, with regard to Claim 1, it is not clear if a “positive temperature coefficient of resistance resistor overload device” requires a resistor or a “positive temperature coefficient of resistance resistor” to satisfy the claims. The Examiner contends that “device” could simply mean a housing that could house such a resistor and that the metes and bounds of Claim 1 are therefore unclear. Further, the Examiner contends that it is not clear what the term “overload” requires. Also, the Examiner contends that it is not clear, with respect to Claim 10, how the terminal and plate can be attached and removed at the same time.

Applicants have amended the claims to clarify the terms found unclear by the Examiner. In particular the phrase “positive temperature coefficient of resistance resistor overload device” has been changed to “positive temperature coefficient of resistance current limiting device,” the term “overload” being deleted from the claims. Furthermore, the term “protrusion” has been changed to “engagement member” and the claim now clarifies that the device does require “a positive temperature coefficient of resistance resistor” rather than another type of resistor. Such amendments clarify the requirements of the device and better define the metes and bounds of the claims.

The Examiner has also asserted that, with regard to Claim 10, it is not clear how the terminal and plate can be attached and removed at the same time. In order to clarify this point, Applicants have amended Claim 10 to recite that “at least one male conductive

terminal is attached to a portion of a plate from which a previously existing male conductive terminal has been removed.” It is respectfully submitted that Claim 10, as now drafted, is clear and definite. Applicants have also made various other changes of wording to Claims 2-9 as shown in the Amendments to the Claims section above.

It is respectfully submitted that the foregoing amendments overcome the Examiner’s rejections on the basis of indefiniteness and it is respectfully requested that these rejections be withdrawn.

Rejection of Claims Under 35 U.S.C. 102(b)

The Examiner has rejected Claims 1 and 5 under 35 U.S.C. 102(b) as being assertedly anticipated by each of U.S. Patent No. 6,132,233 (“Fukuda”) and U.S. Patent No. 5,769,650 (“Aoyama”). In particular, the Examiner relies on Fig. 4 of Fukuda for the asserted disclosure of a plug having a female conductive element, a wire, an overload device body having a socket and one male terminal therein, a plate, and a protrusion protruding outwardly from the device body in a plane parallel to the top of the device. To the extent that the Examiner’s rejection is applicable to Claims 1 and 5, as now amended, it is respectfully traversed.

The present amendments of Claims 1 and 5 eliminate “wire” as an element of the claims. Further, Applicants’ amendments positively recite that the “positive temperature coefficient of resistance current limiting device” includes both a body and a “positive temperature coefficient of resistance resistor” as elements of the claims. As amended, Claim 1 and 5 clearly patentably distinguish over Fukuda. In particular, Applicants point

out that no such “positive temperature coefficient of resistance current limiting device” or “positive temperature coefficient of resistance resistor” is disclosed in Fig. 4 of Fukuda. Rather, Fukuda discloses only a simple electrical connector having a lock arm structure for holding two connectors together, but with no resistors or other electrical components included. Clearly then, the drawings of Fukuda do not disclose or suggest the current limiting device or resistor of Claims 1 and 5.

With regard to Aoyama, the Examiner relies on Fig. 1 and Fig. 6 of the cited reference for the asserted disclosure of a female plug having a female conductive element, a wire, an overload body having a socket therein, one male terminal, and a protrusion protruding outwardly from the body of the device. As noted above, claims 1 and 5 eliminate the element of “at least one wire capable of conducting electrical current.” Aoyama has no such “positive temperature coefficient of resistance current limiting device” or “positive temperature coefficient of resistance resistor.” Rather, like Fukuda, Aoyama discloses only a simple electrical connector having a lock arm structure for holding two connectors together, but with no resistors or other electrical components. Applicants respectfully point out that the overload device body which the Examiner asserts is found in part 23 in Aoyama is merely a cover for a connector, not a “positive temperature coefficient of resistance current limiting device,” as recited in Claims 1 and 5, which specifically require a “positive temperature coefficient of resistance resistor.”

Applicants respectfully point out that that Claim 5 is dependent on Claim 1 and adds an additional limitation. Claims 5, therefore, is submitted to be allowable for the same reasons set out above with respect to Claim 1, as well as its ts additional limitation.

Accordingly, Claims 1 and 5 are not anticipated by Aoyama. It is therefore respectfully submitted that the 35 U.S.C. 102(b) rejections of Claims 1 and 5, as amended, be withdrawn.

Rejection of Claims Under 35 U.S.C. 103(a)

Claims 1-5 and 10 have been rejected under 35 U.S.C. § 103(a) as being assertedly unpatentable over U.S. Patent No. 5,945,903 (“Reddy”), in view of U.S. Patent No. 4,925,398 (“Samejima”). Claims 3-4 have been rejected under 35 U.S.C. § 103(a) as being assertedly unpatentable over Aoyama or Fukuda, in view of Samejima. Claims 1 and 3-6 are rejected under 35 U.S.C. § 103(a) as being assertedly unpatentable over U.S. Patent No. 3,914,727 (“Fabricius”) in view of U.S. Patent No. 6,383,003 (“Corona”), Fukuda (for Claims 1 and 5-6) or Samejima (for Claims 1 and 3-6). Claim 2 is rejected under 35 U.S.C. § 103(a) as being assertedly unpatentable over Fabricius in view of Corona, Fukuda or Samejima, as applied to claims above, further in view of admitted prior art. Claims 1 and 7-9 are rejected under 35 U.S.C. § 103(a) as being assertedly unpatentable over U.S. Patent No. 5,949,324 (“Segler”) in view of Corona, Fukuda or Samejima. Insofar as these rejections may be applied against the claims as amended, they are respectfully traversed.

Applicants respectfully submit that the structure defined in independent Claim 1 is neither disclosed nor suggested by the figures in Reddy or Samejima. As to the Examiner’s reliance on an asserted disclosure by Reddy of “a wire in schematic format” and the disclosure of a “wire” by Samejima “at col. 1, lines 5-10, Applicant’s respectfully point out that the claims, as presently amended, no longer recite a “wire” as an element of the claims. Furthermore, Samejima teaches a simply electrical connector plug 5

interconnecting with a socket open on one wall and having a locking structure. However, Samejima has no disclosure or suggestion of a “positive temperature coefficient of resistance current

limiting device” nor a “positive temperature coefficient of resistance resistor” nor an “engagement member” on the body of the positive temperature coefficient of resistance current limiting device.” Furthermore, Samejima does not disclose that the end of the plug 5 is received “inside” the socket 3. Instead, as shown in Fig. 4 of Samejima, there is a large notch 10 in a wall of socket 3 such that one entire wall of plug 5 of Samejima remains exposed, even when the plug 5 is fully inserted into place.

Accordingly, Applicants respectfully request that the Examiner withdraw the obviousness rejection of Claims 1-5 and 10 with regard to Reddy in view of Samejima, as cited by the Examiner.

With regard to the Examiner’s rejection of Claims 3-4 under 35 U.S.C. 103(a) as being assertedly unpatentable over Aoyama or Fukuda, in view of Samejima, Applicants respectfully point out that Claims 3-4 include all of the limitations of Claim 1, as well as additional limitations. Accordingly, Claims 3-4 are deemed to be allowable for at least all of the reasons discussed above with respect to Claim 1, as well as by reason of their respective additional limitations.

With regard to Claims 1 and 3-6, which the Examiner has rejected under 35 U.S.C. 103(a) as being assertedly unpatentable over Fabricius in view of Corona, Fukada or Samejima, Applicants reiterate that Claims 3-4 have been withdrawn from the present application. As for Claims 1 and 5-6, Applicants respectfully submit that none of the

cited references teach or suggest the present invention. Corona, like Fukuda, and Samejima, discloses a simple electrical connector having wires, but no “positive temperature coefficient of resistance current limiting device” or “positive temperature coefficient of resistance resistor,” as specifically recited in the claims.

Applicants respectfully point out that there is no disclosure or suggestion in Fabricius of an “engagement member,” as asserted by the Examiner with regard to part 60 at Fig. 5 of Fabricius. Rather, Fabricius discloses that part 60 is a “metal heat sinking piece” which makes contact with the outer wall of a cylindrical housing, not an engagement member or flexible arm which would be useful in combination with the cylindrical housing disclosed therein for the purpose of securing a connection between male and female connectors configured as defined in the claims of the present application. Applicant submits that this fact weighs against the modifications of Fabricius which the Examiner asserts would have been obvious in view of Samejima. Therefore, Applicants request that the Examiner’s rejection of Claims 1 and 5-6 under 35 U.S.C. 103(a) with regard to the Fabricius, Corona, Fukada, and Samejima references be withdrawn.

With respect to the Examiner’s rejection of Claim 2 under 35 U.S.C. 103(a) as being assertedly unpatentable over Fabricius in view of Corona, Fukada or Samejima, Applicants point out that Claim 2 is directly dependent on Claim 1 and adds limitations in addition to those recited in Claim 1. Claim 2 is therefore submitted to be allowable for at least all of the reasons stated above for Claim 1, in addition to the capacitor limitation of Claim 2, which the Examiner concedes is not disclosed in the referenced prior art.

As for the Examiner's rejection of Claims 1 and 7-9 over Segler in view of Corona, Fukuda or Samejima, Applicants submit that cited references do not disclose or suggest the present invention as defined by Claim 1, even in combination with the Corona, Fukuda and/or Samejima, already discussed. Segler discloses a temperature sensor and control or thermal probe assembly. There is no disclosure in Segler of the "positive temperature coefficient of resistance overload device" of the present invention nor is there suggestion to modify the thermal probe so as to obtain a positive temperature coefficient of resistance current limiting device. With regard to the other cited references, Corona discloses a simple environmentally sealed electrical connector system, Fukuda discloses a lock arm protection structure for securing male and female connectors, and Samejima discloses another simple connector having a locking arm and locking projection. Applicants submit that none of the aforementioned references disclose use of such connector systems, locking structures or locking connectors in connection with a positive temperature coefficient resistance current limiting assembly as disclosed in the present application. Furthermore, it would not be obvious to add a positive temperature coefficient resistance resistor in view of the lack of sufficient space to do so in the connectors of Corona, Fukuda and/or Samejima.

The Examiner has rejected Claims 7-9 on the asserted basis that Segler discloses, at at col. 1, line 29, "welding, soldering, and other attachment means." However, Claims 7-9 are dependent upon Claim 1 and are submitted to be allowable for at least all the reasons stated above with respect to Claim 1. In addition, Applicants respectfully point that the "welding, soldering, and other attachment means" disclosed in Segler relate only to soldering or welding a thermal probe to electrical circuitry. There is, however, no

disclosure in Segler of use of such a technique in securing male conductive terminals to a plate in a positive temperature coefficient of resistance current limiting assembly, as defined in Claim 7-9 of the present application. Accordingly, Claims 7-9 are submitted to be allowable for this reason as well.

As to the Examiner's contention that it would have been obvious to employ the connections disclosed by Corona, Fukuda or Samejima (i.e., female plugs with wires for joining to male plugs) in combination with the male socket of Segler, Applicants point out that wires are no longer an element of the presently amended claims.

In view of the foregoing, it is respectfully submitted that none of the prior art references cited by the Examiner teach or suggest a positive temperature coefficient of resistance current limiting assembly having the features defined in Claim 1, as presently amended. Accordingly, for the foregoing reasons, it is submitted that the invention defined by Claim 1 would not have been obvious and withdrawal of the rejection of Claim 1 on such basis is believed in order and is respectfully requested.

With regard to Claims 2-10, such claims are directly dependent upon Claim 1 and add limitations beyond those recited in Claim 1. Claims 2-10 are therefore submitted to be in condition for allowance for all the reasons stated above for Claim 1, in addition to being allowable by reason of the limitations added by Claims 2-10. As such, it is respectfully requested that the rejections of dependent Claims 2-10 be withdrawn as well.

Since Claims 1-10 are now believed to be in condition for allowance, it is respectfully requested that a Notice of Allowance issue for pending Claims 1-10.

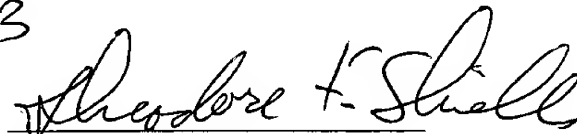
Please charge the fee of \$930.00 for a three months extension of time, and any additional fees incurred by reason of this Amendment (other than issue fees) and credit

any overpayment made in connection with the filing of this paper to Deposit Account No. 50-0605 of CARR LLP.

Should the Examiner have any questions or desire clarification of any sort, or deem that any further amendment is desirable to place this application in condition for allowance, the Examiner is invited to telephone the undersigned at the number listed below.

Respectfully submitted,

Dated: Nov 21, 2003

A handwritten signature in cursive script, reading "Theodore F. Shiells", written in dark ink.

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AMENDMENTS TO THE CLAIMS

Please amend the claims as follows, noting that all pending, non-withdrawn claims are included herein for the convenience and efficiency of examination, and that only those claims so indicated as amended are being amended herein:

1. (Amended) A positive temperature coefficient of resistance ~~resistor overload~~ current limiting assembly comprising:

~~at least one wire capable of conducting electrical current;~~
~~at least one electrically isolated plug comprising at least one female wire receptacle for receiving the wire, and a female conductive element connected to each wire and within said plug, a portion of said wire extending from said plug;~~

a positive temperature coefficient of resistance ~~resistor overload~~ current limiting device having a body having a socket therein ~~comprising:~~ and a positive temperature coefficient of resistance resistor,

at least one male conductive terminal in the socket of the body for receiving the corresponding female conductive connection element on the electrically isolated plug ; said socket being adapted to receive a connection end of an electrically isolated plug, said plug having a female conductive connection element within an insulating open-ended sheath and

said male conductive terminal being inside said socket sufficiently so that when said electrically isolated plug is fully received into said socket and said female conductive connection element received onto said male conductive terminal, at least a portion of said sheath is inside said socket; and

~~a plate made of a conductive material attached to each male conductive terminal;~~

~~an engagement member on a protrusion protruding outwardly from the body of the positive temperature coefficient of resistance current limiting device in a plane parallel to the top of the device adjacent to the socket.~~

2. (Amended) The assembly of Claim 1, further comprising a capacitor having at least one male connector and at least one female receptacle on the positive temperature coefficient of resistance ~~resistor overload~~ current limiting device for receiving at least one male connector of the capacitor.

3. (Amended) The assembly of Claim 1 wherein the electrically isolated plug further comprises a flexible arm with a locking tab of a size and shape such that the upper surface of the locking tab can be retainingly secured against the underside of the engagement member.

4. (Amended) The assembly of Claim 3 wherein the flexible arm can be flexed so as to release the locking tab from pressing up against the underside of the engagement member.

5. (Amended) The assembly of Claim 1, wherein the male connection terminal in the socket on the positive temperature coefficient of resistance ~~resistor overload~~ current limiting device is electrically isolated from adjoining conductive parts when said electrically isolated plug is fully received into said socket and said female conductive connection element received onto said male conductive terminal with at least a portion of said sheath inside said socket.

6. (Amended) The assembly of Claim 1, wherein there are at least two sockets and at least two respectively corresponding male terminals, each of the two sockets on the positive temperature coefficient of resistance resistor-overload current limiting device being of a different size to fit different sized plugs to facilitate connection of the correct plug to the correct male conductive terminal.
7. (Amended) The assembly of Claim 1, wherein the male conductive terminal is attached to at least one plate made of conductive material.
8. (Amended) The assembly of Claim 1, wherein the male conductive terminal is attached to at least one plate made of conductive material by means of welding.
9. (Amended) The assembly of Claim 1, wherein the male conductive terminal is attached to at least one plate made of conductive material by means of soldering.
10. (Amended) The assembly of Claim 1 wherein said at least one male conductive terminal is attached to a portion of a plate from which a previously existing male conductive terminal has been removed ~~cuttingly removed from the at least one~~ plate.